BURNED AREA EMERGENCY REHABILITATION PLAN

MINIDOKA NATIONAL WILDLIFE REFUGE

Lake Walcott 7 Fire
14 July 2002

1. **Background**:
Minidoka NWR was established in 1909 by Executive Order by Teddy Roosevelt. It is an overlay refuge on the Bureau of Reclamation Minidoka Project on the Snake River. The Refuge includes Lake Walcott and almost all of its shoreline to distance of ½ to 1.5 miles from the reservoir. The Refuge is 20,699 acres, about half is upland and half reservoir and associated wetlands. The Refuge lies in south-central Idaho in the Snake River Plain. The Refuge supports several colonies of water birds and large numbers, up to 100,000, waterfowl during the summer molt and fall staging prior to migration. The uplands support sagebrush vegetation. The Snake River Big Sage habitat type has been converted to agriculture or degraded by the loss of native species and invasion of exotic annual grasses. Less than 2% of this habitat type remains in good condition (Noss, R. F., E. T. LaRoe, and J. M. Scott. 1995. Endangered ecosystems of the United States: A preliminary assessment of loss and degradation. USDI, National Biological Service. Biological Report 28. Washington, D.C., 58pp.).

The Refuge is in a high fire frequency area. The Refuge can expect one or more wildfires almost every year. More than half of the fires originate from lightning. About half of the fires originate on the Refuge. Size averages over several hundred acres and ranges from a few acres to several thousand acres.

2. **Site Information**:

2.1. Location and Size: The fire started in Township 9S, Range 26E, Sections 7, and also burned in Section 18 and Sections 12 and 13 in Township 25E, Boise Meridian. Approximately 400 acres burned on Minidoka NWR and 300 - 400 acres of BLM land burned.

2.2. Soils: Soils in the burned area are shallow and vary from sandy loam to coarse gravel. Several sites contain wind-deposited sand dunes.

2.3. Topography: The area is generally rolling, open terrain with numerous outcrops of basalt. The northern border of the fire is the shore of Lake Walcott, an 11,300 acre reservoir. About 2 miles of shoreline were burned. Elevation averages about 4,200 feet.

2.4. Climate: The area is semi-arid with average precipitation of 8 inches per year. Average minimum temperature in January is -5°F while maximum average for July is 97°F. Much of the precipitation comes in the form of snow during the winter months.

2.5. Vegetation prior to fire: The area consists of uplands classified as sagebrush. The overstory is composed primarily of sagebrush with smaller amounts of rabbitbrush and traces of bitterbrush. The understory in places is largely cheat grass (downy brome). Crested wheatgrass and native grasses are also present and include of western wheatgrass, Indian ricegrass, needle-and-thread, squirreltail and Sandberg's bluegrass. Native and introduced forbs are also present. The riparian vegetation is a narrow strip which consists of willows, currant, Russian olive and numerous forbs. The riparian vegetation was a mix of several species of native willows, box elder, Chinese elm, Russian olive, green ash and 3 Lombardy poplars.

2.6. Intensity of fire: The fire intensity ranged from moderate to high in various places throughout the burn. In some places the brush species were entirely consumed, while in other places only fine fuels were consumed and the stems of the brush are still standing. The fire burned most of the riparian vegetation down to standing water. The bark of most trees was killed and some trees were burned through.

2.7. Hydrology: The burned area has no perennial streams, but during heavy precipitation events run-off can reach the reservoir (Lake Walcott). The burned area includes about 2 miles of reservoir shoreline.

2.8. Land Ownership: About 400 acres of the burned area is managed by the U. S. Fish and Wildlife Service (Service); about 300-400 acres of Bureau of Land Management lands burned. The land managed by the Service is actually Bureau of Reclamation land.

3. **Resource Uses**:

Vegetation: most of the vegetation was sagebrush type with some rabbitbrush mixed in. The understory was grasses and forbs. Some native species of grasses dominated patches, while cheat grass or crested wheatgrass dominated the understory in other locations. The sagebrush was predominantly the *Wyoming ensis* subspecies that is heavily used for food by wintering mule deer and pronghorns.

Songbirds: This group of species used the burned area from spring through fall for nesting and foraging. Species present that are associated with sage are sage thrasher and Brewer s sparrow; these species are declining because of the loss of sagebrush habitat. Other species present in the area prior to the burn were vesper, lark and grasshopper sparrows, loggerhead shrike, horned larks, and western meadowlark. The riparian areas burned included some of the best habitat of that type on the refuge.

Raptors: Red-tailed, Swainson s and ferruginous hawks, golden eagle, and short-eared owl nest nearby and use the area for hunting during spring through fall. During the winter rough-legged and red-tailed hawks use the area for hunting. Occasionally other species such as prairie and peregrine falcons, American kestrel, sharp-shinned hawks use the area, primarily during migration. Bald eagles forage and roost along the reservoir shoreline during fall, winter and early spring.

Ungulates: Mule deer and pronghorns use the area year round and are dependent on the brush species, especially sagebrush for food during the winter..

Herptiles: Species present in the burned area include western chorus frog, northern leopard frog, western terrestrial garter snake, western rattlesnake, gopher snake, racer, sagebrush lizard, western skink, and longnose leopard lizard.

Threatened and Endangered Species: An endangered snail, the Utah valvata (*Valvata utahensis*) live in the reservoir adjacent to the burn.

Idaho Partners in Flight Priority Species:
High priority species using the burned area at some time of the year include Brewer s sparrow, bald eagle, and willow flycatcher. Moderate priority species using the area include sharp-tailed grouse, sage thrasher, willet and gadwall.

Public Use: This area is not open to hunting but is open bank fishing .

4. **Evaluation and Analysis**

4.1 On Site Physical Habitat Damage: The vegetative cover was almost completely removed. In many places the brush stems were consumed right into the ground. In other places the stems are dead, but still standing. Where native grasses were present, they will likely resprout next spring. Cheat grass will also sprout next spring. In the meantime there will be no ground cover over the winter. Some of the biotic soil crust appears to have survived, although it is very difficult to evaluate its viability at this point simply by looking at it. There may be some chance of water erosion near the reservoir shoreline where the lack of vegetation will allow some silt and nutrients from the ash to run into the reservoir after a major precipitation event. There may be some wave erosion on the reservoir shoreline where emergent vegetation and willows were burned.

4.2 Damage to Structures: The only physical structures in the fire were fences and signs. Damage caused by suppression activities has been repaired to the boundary fence, but not to interior fences. The face of some refuge signs was burned off.

4.3 Offsite Nonphysical Damage: There will likely be some suspended sediment problems along the shoreline areas that burned, from run-off from large precipitation events and from wave erosion along a cut bank. More than half of the burned shoreline is exposed sand, the rest is rock. Sediment run-off from these areas could have negative effects on Utah valvata snails.

4.4 Damage to Wildlife Habitat:
Songbirds: Habitat for brush associated songbirds (Brewer s, vesper, and lark sparrows, sage thrasher, and western meadowlark was eliminated. The area is unlikely to support adequate brush for these species for at least 15-25 years. Tall riparian habitat for yellow warblers, willow flycatchers, western wood-pewees and Bollock s orioles will need to be replanted and will take

10-20 years to recover. Shorter willows (coyote willow --- *Salix exigua*) will recover in 5 - 10 years; this species can be recovers from cuttings.
Ungulates: Mule deer and pronghorn habitat has been lost. Both species use sagebrush for escape cover and for feeding. This represents significant loss when you factor in other fires in the past 10-15 years have also reduced habitat (more than half of the upland lands on the refuge have been burned in the past 10 years). Cumulative losses are much higher than the current burn.

Upland Game Birds: Ring-necked pheasants, gray partridge and sharp-tailed grouse all occur in the burned area. All used the brush as nest and escape cover.

4.5 Benefits & Risks: Songbirds and ungulates would benefit from the sagebrush seedings. It would provide cover for both groups and forage for the ungulates.
Restoring the riparian vegetation would benefit songbirds and ungulates, by providing cover for both groups and forage for the ungulates. Riparian zones are important fawning and bedding sites for mule deer. A healthy riparian zone will also reduce run-off from storm events into Lake Walcott, benefitting an endangered snail.

Without restored riparian zones there is a risk that a large storm could flush nutrients and sediments into the reservoir harming the endangered Utah valvata snail. Riparian zones are important buffer zones that intercept and dampen much of the run-off from these storm events.

5. **Rehabilitation Needs and Objectives**

5.1. Rehabilitation Alternatives:

5.1a. No Action: Allow natural revegetation. Spot spray infestations of state-listed noxious weeds. This would be the least expensive alternative in the short term. There would be no improvement in wildlife habitat, or vegetation. This will not resolve potential effects of run-off on endangered snails. This would address noxious weed problems only.

5.1.b Selective Rehabilitation: Rehabilitate selected areas that might affect listed and petitioned species. Plant willow cuttings and other riparian native tree species on about 1.5 miles of shoreline along the reservoir. This will provide habitat for upland birds and ungulates and will help revegetate the shoreline to reduce wave erosion. A healthy riparian zone will reduce run-off from the uplands, protecting the endangered snail from potential negative effects. Collect local sagebrush seed this fall and plant during the winter. This will restore lost songbird and ungulate habitat. Spot spray infestations of state-listed noxious weeds. This alternative would address noxious weed problems and restore the riparian zone.

5.1c. Complete Rehabilitation: Apply Plateau® over the burned area, leaving adequate buffer along the shoreline. Plateau® inhibits plant growth and can control downy brome, but when applied at the proper rates will allow exiting perennial grasses, forbs and shrubs to persist. It is usually applied in the fall of the fire. Native grasses can then be planted. Drill native grass seed where possible; aerial seed native grasses over the rest of the burn, then chain to bury the seed. Seed cannot be drilled over much of the area because of rock outcrops. Spot spray infestations of

state-listed noxious weeds. This alternative would address noxious weed control, and riparian and upland restoration.

5.2. Treatment Recommendations: Alternative 5.1b is recommended. This alternative is achievable. This will allow us to focus on the areas where rehabilitation is possible and on the areas where it is needed most. Infestations of state-listed noxious weeds will be sprayed with approved herbicides. Willow cuttings will be taken from willows existing on the Refuge or nearby and planted within a week after collection. Cuttings need to be planted during the dormant season. Seedlings from local nurseries will also be planted. Americorps work groups will be used to collect cuttings and sagebrush seed and to plant cuttings and seedlings in riparian areas. Planting will be done using the Refuge boat for access during March and early April 2003. The refuge staff will plant the sage brush seed during the winter.
Alternative 5.1a was not selected as it entails no restoration of an important habitat type in the west. Alternative 5.1c was not selected because restoration of native grass species is extremely difficult and expensive. It is dependent on favorable moisture conditions. We are currently in a multi year drought, not a good time to attempt such a project.

6. **Environmental Considerations**

6.1. Impacts of Proposed Alternative: Proposed rehabilitation actions should have no adverse impact on endangered or petitioned species, and should benefit them over the long term. Willow plantings will stabilize the shoreline and will reduce suspended sediments from wave action in the reservoir and will also reduce the potential for sediment and nutrient inputs to the reservoir from run-off events. This will benefit the Utah valvata snail. Any herbicides that will be required already have been approved for use by the Regional Integrated Pest Management Specialist and will be used in accordance with the Refuge Integrated Pest Management Plan. An archaeological clearance will be undertaken before any ground disturbing activities.

6.2. Relation to Other Plans: This BAER Plan is consistent with the Refuge Fire Management Plan. The most recent Fire Management Plan states the top two objectives for habitat management in relation to fire were 1) to retain the refuge uplands in as natural a state as possible, maintaining native plants over introduced species when possible and 2) to maintain natural diversity of plants to encourage wildlife diversity. The Fire Management Plan was written before the endangered snails were found on the Refuge so it does not address this species specifically. Minidoka NWR is scheduled for CCP about 2005 or later. The Refuge is operating under Refuge Management Plans written in the early 1990's. This plan also was written before the discovery of Utah valvata snails on the refuge. This BAER Plan is also consistent with the Management Plan. Among the wildlife goals statements are: provide safe habitat for naturally occurring wildlife species threatened with extinction and maintain natural ecological diversity on refuge lands .

6.3. We will comply with Idaho State and Cassia County noxious weed laws and ordinances. The recovery plan for the Snake River Mollusks, which includes the endangered Utah valvata, calls for restoration of damaged riparian area. The proposed action is consistent with the recovery plan. Herbicide use will comply with all Service, Federal, and State policies, laws and

regulations.

7. **Monitoring and Evaluation**

7.1. Monitoring Process

7.1.1. Proper Implementation: Willow cuttings will be planted following directions *in* Bentrup, G., and J. C. Hoag. 1998. The practical streambank bioengineering guide. USDA, NRCS, Plant Materials Center, Aberdeen, ID. For best establishment cuttings need to be planted during the spring while plants are still dormant. We have successfully established several species of willows at other locations on the Refuge following these guidelines. Seedlings will also be planted in March and April. Sagebrush seed will be collected in fall and planted during winter.

7.1.2. Implementation Effects: Photo points will be used to monitor the efficacy of the willow cuttings and seedlings and for sagebrush seedings.

7.2. Documenting Results and Accomplishments: Efficacy of the plantings of cuttings and seedlings will be made photographically.

8. **Summary of Anticipated Resource Needs**

8.1. Treatment Unit: About 1.5 miles of the shoreline will be planted with willow cuttings. All of the treated area is managed by the Refuge. The amount of sagebrush seeding will depend on the amount of seed that can be harvested.

8.2. Cost:
Most of the funds will be used in FY03.

Weed Control

	amount	cost/gal	total
Adjuvant	1 gal	25	25
Clarity	15 gal	95	1425
total			1450

note: Five gallons will be sufficient for 3 years control of noxious weeds.

Staff Time

	number of staff days	cost/day	total
Planning and purchasing (1 person)	5	250	1250
Weed control (1 person) 3 days/ yr for 3 yrs	9	200	1800
Harvest sage seed (Americorps crew)	1 wk	1800/wk	1800
Sage seeding	5	200	1000
Plant cuttings & seedlings (Americorps crew)	1 wk	1800/wk	1800
Monitoring & evaluation (1 person) 2 days/yr for 3 yrs	6	250	1500
total	72		9150

Miscellaneous

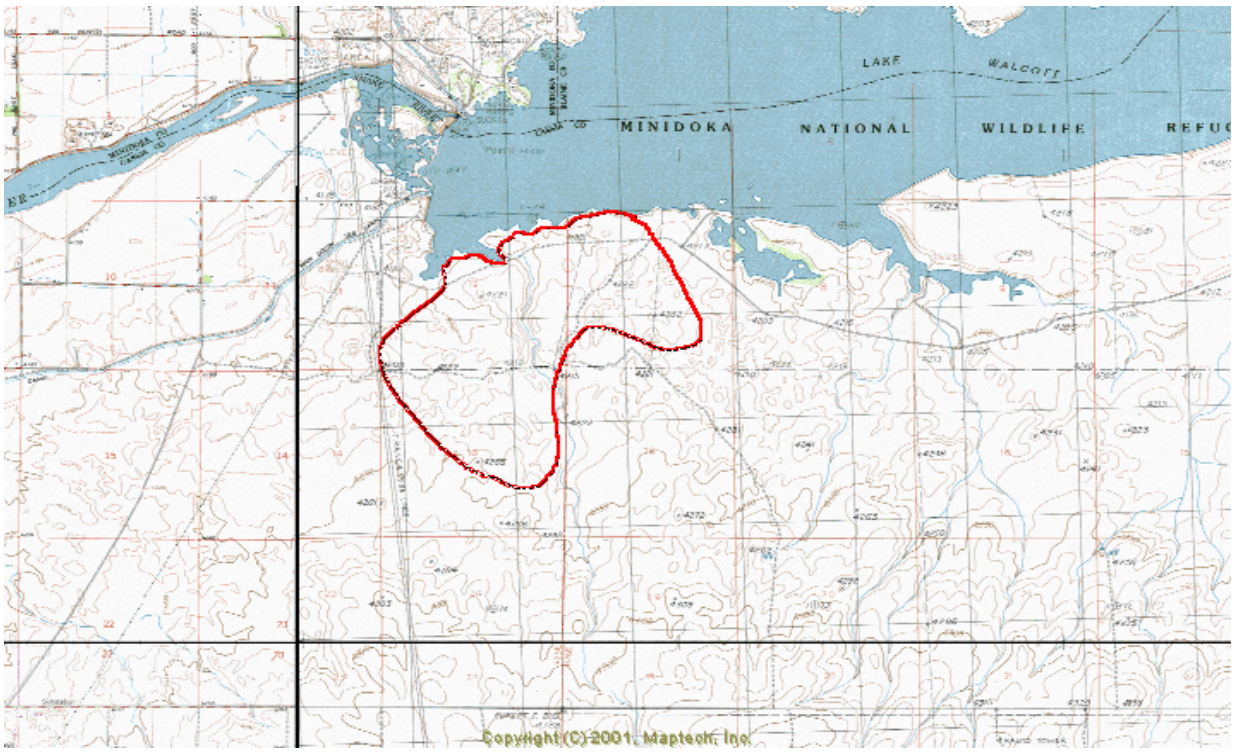
Fuel	1200
Seedlings	1000
Equipment Repair	1500
Archaeological Clearance	3000
total	6700

Total Costs

Item	Cost
Weed Control	1450
Staff Time	9150
Miscellaneous	6700
total	17300

9. **Maps & Figures**

9.1 Fire Perimeter:
Map of the burned (single hatching) and treatment area within the burn (double hatching).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9.2 Boundary of treatment Unit:
See the map above for the boundaries of the treatment area. Double hatching lines indicate treatment area.

9.3. Photographs of Resources to be Rehabilitated:

9.3.1. Aerial view of the burn.

- Aerial photos were taken before the fire burned approximately 400 additional acres to the south and along the southwest shore of Lake Walcott.

9.3.2. Photograph of the main part of the treatment unit.

10. **Cost/Risk Analysis**

There is a risk associated with no action and with the proposed action. With no action there is a risk that downy brome will increase and future fire frequency will increase, further reducing wildlife habitat. This will lead to increased suppression and rehabilitation costs in the future. It will result in lower carrying capacity for wildlife, including the endangered Utah valvata snail and the sharp-tailed grouse which has recently been petitioned for listing. No action will guarantee at least current conditions, and most likely worse conditions in the future.

There is no guarantee that the seeding will succeed. We have had failures and great successes in recent seedings. At least a portion of the failures might be attributed to poor weather conditions, but part was attributed to planting too deeply. We have resolved this problem. The successful seedings are thick healthy stands of native grasses. These stands provide good wildlife cover, while at the same time are less likely to burn and if they do burn will not require expensive revegetation. In short, these successful seedings have reduced future suppression and rehabilitation costs while providing better habitat for wildlife. The proposed action offers this same scenario for the future on the Lake Walcott Fire.

BURNED AREA EMERGENCY REHABILITATION PLAN

MINIDOKA NATIONAL WILDLIFE REFUGE

SOUTH REFUGE FIRE

18 July 2002

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